

REMARKS

Applicants acknowledge with appreciation the allowability of claims 5, 6, 14 and 15. Claims 2, 7, 8, 16, 31 and 36 have been canceled without prejudice. Claims 1, 3-6, 9-11, 13-15, 17, 18, 28, 33 and 38 have been amended to more particularly define Applicants' claimed invention. Support for the amendment of claims 1, 11, 28 and 33 can be found at page 12, line 22 through page 13, line 8, page 10, lines 18-20 and page 11, lines 15-23 of Applicants' specification and original claim 8. Support for the amendment of claims 3-6, 9 and 10 can be found at original claim 1. Support for the amendment of claim 13-15 can be found in original claim 11. Support for the amendment of claims 17 and 18 can be found at page 10, lines 4-15 and page 13, lines 9-17 of Applicants' specification. Support for the amendment of claim 38 can be found at page 17, line 3 through page 18, line 2 of Applicants' specification.

The rejection of claims 1, 2, 7, 11, 24, 25, 27-29, 33, 34 and 38 under 35 U.S.C. 102(b) as being anticipated by Chen et al. (US 5,576,069) is respectfully traversed.

In view of the amendment of independent claims 1, 11, 28 and 33 to incorporate the subject matter of non-rejected claim 8, this rejection is deemed improper and should be withdrawn.

The rejection of claims 1, 2, 11, 22- 25, 27-29, 33, 34 and 38 under 35 U.S.C. 102(b) as being anticipated by Nissley et al. (US 6,102,656) is respectfully traversed.

In view of the amendment of independent claims 1, 11, 28 and 33 to incorporate the subject matter of non-rejected claim 8, this rejection is deemed improper and should be withdrawn.

The rejection of claims 1, 2, 11, 19, 20, 24, 25 and 27-38 under 35 U.S.C. 102(e) as being anticipated by Good et al. (US 6,358,002) is respectfully traversed.

In view of the amendment of independent claims 1, 11, 28 and 33 to incorporate the subject matter of non-rejected claim 8, this rejection is deemed improper and should be withdrawn.

The rejection of claims 1, 2, 11, 24, 28, 29, 33, 34 and 38 under 35 U.S.C. 102(e) as being anticipated by Graham et al. (US 6,432,487) is respectfully traversed.

In view of the amendment of independent claims 1, 11, 28 and 33 to incorporate the subject matter of non-rejected claim 8, this rejection is deemed improper and should be withdrawn.

The rejection of claim 26 under 35 U.S.C. 103(a) as being unpatentable over Chen et al. (US 5,576,069) in view of Gupta et al. (US 5,403,669) is respectfully traversed.

In view of the amendment of independent claim 11 (claim 26 depends on claim 25 which depends on claim 11), this rejection is deemed improper and should be withdrawn.

The rejection of claim 26 under 35 U.S.C. 103(a) as being unpatentable over Nissley et al. (US 6,102,656) in view of Gupta et al. (US 5,403,669) is respectfully traversed.

In view of the amendment of independent claim 11 (claim 26 depends on claim 25 which depends on claim 11), this rejection is deemed improper and should be withdrawn.

The rejection of claims 21-23 and 26 under 35 U.S.C. 103(a) as being unpatentable over Good et al. (US 6,358,002) in view of Gupta et al. (US 5,403,669) is respectfully traversed.

In view of the amendment of independent claim 11 (claims 21-23 all depend on claim 11 and claim 26 depends on claim 25 which depends on claim 11), this rejection is deemed improper and should be withdrawn.

The rejection of claims 1-4, 7-13, 16-18, 22-25 and 27-38 under 35 U.S.C. 103(a) as being unpatentable over Taylor et al. (US 5,073,433) in view of Graham et al. (US 6,432,487) is respectfully traversed.

The primary reference, Taylor et al. discloses a thermal barrier coating comprising zirconia partially stabilized by yttria and having a substantial homogeneous dispersion of vertical macrocracks throughout the coating to improve its thermal fatigue resistance. As noted by the Examiner in the Office Action, Taylor et al. does not disclose “an additional coating thereon that does not include macrocracks”. Nowhere does Taylor et al. disclose or suggest a multilayer ceramic, thermal barrier and abradable coating comprising an inner ceramic layer having specifically defined vertical macrocracks distributed throughout and an outer ceramic abradable layer substantially free of vertical macrocracks as claimed by Applicants.

The secondary reference, Graham et al., adds nothing to make up for the deficiencies of Taylor et al. as a primary reference. Graham et al. discloses a process for applying a vertically cracked ceramic thermal barrier coating to a machine component by applying a plurality of layers of the ceramic thermal barrier coating on the component utilizing a nozzle at a first distance from the component, applying an additional sacrificial outer layer of the ceramic thermal barrier coating of the same chemical composition as the plurality of layers on the component with the nozzle at a second distance from the component, and removing at least some of the outer layers to achieve desired thickness and surface roughness specifications.

Graham et al. discloses only vertically cracked ceramic thermal barrier coatings in general and is silent with respect to an outer layer that does not include vertical cracks. Further, in contrast to Applicants’ claimed invention, Graham et al. is also silent with respect to the length and frequency (i.e., number of vertical cracks per linear centimeter of the coating) of the vertical cracks included in the

ceramic thermal barrier coatings. While Graham et al. discloses a thin outer layer for finishability to some smoothness by blending with diamond impregnated disks, Applicants' claimed invention provides multilayer ceramic coatings capable of high speed tip rub abrasability. Nowhere does Graham et al. disclose or suggest a multilayer ceramic, thermal barrier and abrasable coating comprising an inner ceramic layer having specifically defined vertical macrocracks distributed throughout and an outer ceramic abrasable layer substantially free of vertical macrocracks as claimed by Applicants.

Applicants submit that alleged obviousness of the instantly claimed invention must be predicated on something more than it would have been obvious to try adding an outer ceramic abrasable layer substantially free of vertical macrocracks to a single layer thermal barrier coating having specifically defined vertical macrocracks distributed throughout to arrive at Applicants' claimed multilayer ceramic coatings or the possibility that such a particularly defined multilayer ceramic coating would have been considered in the future, having been neglected in the past. See Ex parte Argabright et al. 161 USPQ 703. It is submitted that "obvious to try" is not a valid test of patentability, and patentability determinations based on that as a test are contrary to statute. See In re Mercier 515 F2d 1161, 185 USPQ 774; In re Antonie 559 F2d 618, 195 USPQ 6; In re Goodwin et al. 576 F2d 375, 198 USPQ 1; and In re Tomlinson et al. 363 F2d 928, 150 USPQ 623.

Clearly, it is only by hindsight that the Examiner could impute to the single layer, vertically cracked, thermal barrier coatings of Taylor et al. an outer ceramic abrasable layer substantially free of vertical macrocracks to arrive at the instantly claimed multilayer ceramic coatings, and such hindsight obviousness after the invention has been made is not the proper test. See In re Carroll 601 F2d 1184, 202 USPQ 571.

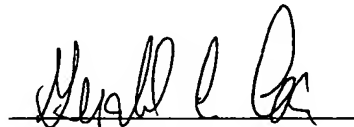
The rejection of claim 26 under 35 U.S.C. 103(a) as being unpatentable over Taylor et al. (US 5,073,433) in view of Graham et al. (US 6,432,487) and further in view of Gupta et al. (US 5,403,669) is respectfully traversed.

In view of the amendment of independent claim 11 (claim 26 depends on claim 25 which depends on claim 11), this rejection is deemed improper and should be withdrawn.

It is respectfully submitted that the rejections of record are improper and that the application is in condition for allowance. Accordingly, reconsideration and allowance of all claims are courteously solicited.

A response to the Office Action mailed April 28, 2003 was due July 28, 2003. Accordingly, submitted herewith is a petition for an extension of time for three (3) months. Please charge fees/surcharge which may be required by this paper, or credit any overpayment, to Deposit Account No. 16-2440.

Respectfully submitted,



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